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AUTHOR	Ghasemiyeh, Rahim; Li, Feng
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ABSTRACT

This paper evaluates the impacts of the Internet on organizational structures and identifies new forms of organizations in light of information technology (IT) advances. Four traditional forms of organizations are summarized, i.e., the bureaucratic hierarchy, the entrepreneurial organization, the matrix organization, and the adhocacy. The following characteristics and imperatives of emerging forms are then described: globalization; entrepreneurship and innovation; customer or service orientation; flexibility; cost reduction; outsourcing; improving quality; cooperation through IT; and developing human capital. (Contains 36 references.) (MES)

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Information Technology and New forms of Organisations

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Rahim Ghasemiyeh
Department of Management Science
University Of Strathclyde
Rahim@mansci.strath.ac.uk

Feng Li
Department of Management Science
University Of Strathclyde
feng@mansci.strath.ac.uk

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Abstract: Nowadays economic logic has changed and has imposed a set of new rules. Those who play by the new rules will prosper; those who ignore them will not thrive in a competitive word. In fact traditional organisational forms and their vertical structures tend to be slow in developing and implementing decisions and less facilitative of innovation. Due to this many management gurus have argued that current models of organizational structure fail to meet the challenges of the information age. Indeed, some commentators claim that the age of traditional organisational is over. They assert that traditional hierarchy outlived its usefulness and new organisational models needed and that IT lies at the heart of these new models for next century. The purpose of this paper is to evaluate the Internet impacts on organisational structures and identify new emerging forms of organisations in the light of IT advances.

Introduction

To evaluate how organisations change Brown and Eisenhardt (1998) consider two theories. One perspective is a Darwinian view, in other word, a process of how living thing grow, adapt, and change. This is *Evolutionary Theory* that describes the process of gradual change across time through variation, selection, and preservation. This theory gives a passive role rather than an active role to organizations. The organisational growth model that has been introduced by Greiner is an evolutionary model. The second and newer perspective is *Complexity Theory*. This theory emphasizes the emergence of surprising called adaptive systems. According to complexity theory, adaptation is most effective in systems that are only partially connected. According to this theory after an unknown period of time a significant event occurs that create a pervasive changes in all aspects of human life. The time of occurrence of such event called Bifurcation Point. Looking backward, when we look in history we can identify many of these bifurcation points, for example, electricity in its time was a bifurcation point. In our age The Internet can be seen as a new bifurcation point.

Internet is a pervasive phenomenon and it is commonly believed that the Internet and its inherent distributed capabilities that lead to decentralized views. They have had profound effects on organisational structure, because organisations can gain enormous location flexibility in various activities. Nowadays the Internet has overcome distance and organisations now have to deal with different combinations of physical and electronic spaces and places. The challenge for companies in information markets is the shift from physical to electronic infrastructures.

Many factors are driving change -or maybe it is better to say impose change - but as Byrne (2000) report, none is more important than the rise of Internet technologies. According to Johnson (2000) the Internet is going to mature faster than any other development seen to date. He claims, in a traditional organisation, CEO has used information as a power device. In the 21st century Corporation, continuous link between customer, knowledge workers, suppliers and so on is necessary. In such a setting the free flow of information is inevitable. With the Internet everyone can participate, regardless of size and circumstance (Bulloch, 2001).

Using the Internet offers opportunities for reducing operating cost levels and enhancing services (Venkatraman, 2000). It also provides opportunities for leveraging divers sources of expertise within and across organisational boundaries (Venkatraman and Henderson, 1998).

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The growth of Internet-based business is truly meteoric (Mahadevan, 2000). A recent report in Purchasing magazine stated that 81% of purchasing professionals use the Internet in their job. That's up from 73 percent in 1998, and represents an incredible increase from 1997, when just 45% of buyers utilized the Web (Johnson, 2000). Ford and General Motors have announced that they will do all procurement over the Web within a year.

(Bulloch, 2001) reports, four years ago, according to a recent CFIB survey, only 30% of firms with 5099 employees were using the Internet to do business. Today that number is 85%. And it is no surprise that 82% of these firms are using the Internet for email, 46% own a Web site, 23% are buying online and 17% are selling online. Some researchers (Teo, et al. 2000) claim, the advent of Internet has increased the importance of IT and opened new opportunities that can dramatically alter way a firm compete, for example Intranet and extranets have enabled firms to reduce costs and streamline business operations.

(Ross, 1999) reports the Poster Gallery in Albuquerque, N.M. sells just about every poster in print, using volume orders to secure discounts from vendors. " In our first year we sold $4000," says Robert Farley, the owner. Two years later, " we're doing about $300000, 99.9% of it on the Internet."
In contrast, Simon (2000) declares that loyalty may be less on the Internet than in traditional organisations. In spite of great advantage, the Internet's effect on centralisation will not be as strong as one might expect, but there is evidence to support both points of view. One of major criticisms of the Internet is that it does not lend itself to a centrally managed environment (Smith, 1999).

Traditional Forms:

In summary, looking backward, four organizational models have been introduced for prescribing how to design an organization to achieve alignment among the various component within the organization and its environment. The models are discussed briefly below:

The Bureaucratic Hierarchy: In bureaucratic organization, authority hierarchy is well defined, duties of employees are clear (division of labor). Organisation characterized by high formalization and employment decisions based on merit .The strength of this model lies in its standardization of activities and doing them in a highly efficient manner (Robbins, 1987). Its two major weakness are too emphasis on specialization leads to subunit conflicts.

The Entrepreneurial Organisation: In contrary of bureaucratic firm, an entreprencurial firm always looking for innovation, and continually searching for the risky environments (Mintzberg, 1983). The key to success in entrepreneurial organizations is real-time, organization-wide information sharing, and collaboration throughout the organization (Applegate, 1994).

The Matrix Organisation: In effort to minimize environmental complexity, in 1960s, researchers introduced the matrix model. This model characterized by using specialists from various departments to collaborate as a team(s). In contrast with its primary objects, the matrix failed to create asuitable climate throughout the organization. Its various information channels result overlapping authority and power struggles (Robbins, 1987; Applegate, 1994).

The Adhocacy :In dynamic and complex environment, there is a need to sophisticated innovation. Mintzberg (1983) suggest the adhocracy as a final solution, and characterized it as a "highly organic structure, with little formalization of behavior, high horizontal job specialization based on formal training. According to Robbins (1987), adhocracy is a kind of organization with low vertical differentiation, low formalization, decentralization and great flexibility.

Emerging forms: Characteristics and Imperatives

Many studies have been devoted to find characteristics of emerging forms of organizational structures (Miles and Snow, 1992; Klenke, 1994; Applegate, 1994; Chesbtough and Teece, 1996; Hagl III, 1996; Kelly, 1997; Lee, 1997; Li, 1997; Brown and Eisenhardt, 1998; Hitt and Keats, 1998; Venkatraman, 2000 and 1994; Mahadevan, 2000; Symon, 2000; Black and Edwards, 2000; Byrne, 2000; Eisenstat). It is obvious that mentioning all the related studies are far beyond the scope of this paper, however, I will try to evaluate briefly the main ideas of above papers.

A number of terms have been used to describe the organizational form of the future. (Chesbrough & Teece ,1996), Hagel & Armstrang (1997) and Chutchian (1999) called it *Virtual Corporation*. Other names including: *Plug –And –Play Company* (Cairncross, 2000), *Network Organisation* (Black and Edwards, 2000; Byrne, 2000), *Web Company* (Hagel III, 1996), *Knowledge-Creating Company* (Nonaka & Takeuchi, 1995), *Opportunity Based Design* (Eisentat et al. 2001). Despite the different names, all the new forms emphasize on similar

drivers: globalisation (Chesbrough & Teece, 1996, Hitt & Keats, 1998; Symon, 2000; Raynor, 2000) the move to an information economy (Venkatraman, 1994 & 1997; Bjorn & Turner, 1994), flexible environment (Boddy & Buchanan, 1986; Kelly, 1997), to be entrepreneurial and to be responsive to markets (Eisenstat et al., 2001), and customer orientation (venkatraman, 1994 & 2000).

Some commentators identified "technology " as an "imperative" that determine structural characteristics such as span of control, and centralisation of authority (Klenke, 1994). Bjorn (1994) recognise technology as an "enabler", however he argue that it is not technology itself that should be the primary focal point of organisational transformation. It is obvious that IT has had a profound impact on business and organisational structure (Venkatraman, 1994; Miles & Snow, 1992; Li, 1997), and it seems, this trend will continue at faster pace. Particularly, the role of IT to the change in organisational routines, and its potential as a main source of organisational innovation must be emphasized (Venkatraman, 1994, Li & Williams, 2000).

Generally, researchers have argue that in the light of IT advances, organisations have been moved away from centrally coordinated, multi-level hierarchies towards a more flat and flexible structures (Boddy & Buchanan, 1986; Boddy & Gunson, 1996; Li, 1997; Hitt & Keats, 1998; Byrne, 2000). In other words, because vertical structures tend to be slow in developing and implementing decisions and less facilitative on innovation, hierarchical organisational structures are replaced by more horizontal structures (Klenke, 1994). Coordination, in traditional structures, usually was achieved through establishing standards, developing plans and schedules, but a horizontal structure will use more formal integrating mechanisms (Hitt & Keats, 1998).

Today organisations confront a set of new imperatives that have changed the nature of competition. The new situation, need new rules. Successful organisations in 21st firstly must identified new imperatives and then build a proper organisational structure to cope with them. New imperatives can be posed as follows:

Globalisation: Drucker points out that one of the big headaches for companies in the new century will be globalisation (Raynor, 2000). Globalisation has largely been due to worldwide economic development and the opening of domestic markets to foreign firms. A recent survey showed that approximately 50% of small businesses in the US. Were operating in international markets, up from 20% in the early 1990s(Hitt & Keats, 1998). Advanced information technology has overcome the geographical distance (Li & Williams, 1999). In fact all the players in recent years have close ties with each other, but this ties are all electronic (Chutchian, 1999).

Entrepreneurship and Innovation: Traditional business typically concentrate on opportunities they can pursue by them, by contrast, new organisation must encourage their people to look for a richer multiplicity of opportunities, including those that business can't seize alone. Kelly (1997) alleges that one of the main source of wealth in new situation flows directly from innovation. Some researchers claim that innovation is the first rule in globalises economy ((Hitt & Keats, 1998). Companies in Internet Age, require organizing efforts that move beyond efficiency and control to ones that emphasize the ability to take advantage of opportunities (Black & Edwards, 2000).

Customer or service orientation: Customers in new landscape are informed and knowledgeable. Venkatraman & Henderson (1998) and Schacklett (2000), assert that, emergence of electronic customer communities, is one of the most profound aspect of advanced IT. They also argue, in the industrial economy consumers could not be effectively linked together across time and space. Nowadays, using the Internet customers can remotely experience products and services. To be more precise, electronic communities signal a power shift from manufacturers to customers. According to Byrne (2000), future company will tailor its products to each individual by turning customers into partners and giving them the technology to design and demand exactly what they want. He also avers, the real power of IT results from its potential to Tran formative change, and much of that will involve the company's relationship with its customers.

Flexibility: Flexibility is a vital characteristic. Firms must be flexible to manage unpredictable change in their environments. This feature, will able companies to deal with enhanced competition, and rapidly react to competitors. Hitt and Keats (1998), claim success in the 21st century organisation will depend first on building strategic flexibility. As noted earlier Implementing a horizontal structure can also enhance organisational flexibility.

Cost Reduction: In the light of IT advances, over half of web purchasers' view three or more sites before they purchase, consequently, Simon (2000), predicts, price will be even a bigger factor in new landscape. Using IT in many virtual companies have had a dramatic effects on cost reduction. A typical bank transaction costs $1.25 when handled by a teller, 54 cents when done by phone, but the same transaction processed over the Internet costs 2 cents! In some cases a Net-based catalogue system reduced procurement costs to one-twentieth (Byrne, 2000). Roughly 65 % of IT managers believe the Internet technology has reduced costs in their organisations, and 55 % say it has increased revenue (Wilson, 1999). A major impact of the Internet and its inherent distributed capabilities, says Mahadevan (2000), is dramatic reduction in search costs for both the buyers and the sellers

Outsourcing: while moving manufacturing offshore is nothing new to many corporations, Brenner (2000) report, still a significant percentage of corporate purchasing cost is focused on outsourced services from third-

party vendors. Nike creates a global network of organisations to produce athletic shoes instead of keeping all the work inside the organisation (Miles & Snow, 1992). Waters (2000), reports the strong global economy will expand demand for U.S. goods and services. But the domestic labour force will be unable to produce these for a competitive price. Some companies, are finding that they can cut costs and leverage the most out of their staff and budgets if they partner with other companies that specialize in particular areas that they can't do or as efficiently themselves (Chutchian, 1999. Ford Motor Company has process links with Goodyear Tire that allow it to exploit concurrent engineering and reduce the time of new product introduction. The potential benefits are that each partner can leverage the competencies in the extended network without resorting to the costly options of vertical integration. (Vekatraman, 1994). According to Wilson (1999), 53% of IT managers say they are outsourcing at least some of the development of their Internet/Intranet projects.

Improving Quality: As noted earlier, with using the Internet, customers are informed, so corporations must rely on the quality of their product than on the strength of their brand (Hagel III & Armstrong, 1997). There are some evidence that using advanced IT offers opportunities for reducing operational cost levels and /or improving products and services (Vekatraman, 2000).

Cooperation through IT: New situations create a need to "Digitisation", which means simply removing human minds and hands from an organisation's must routine tasks and replacing them with computer and networks (Byrne, 2000). Unlike traditional organisations that most interaction occurs within business units, in a virtual corporation people from a variety of units are worked together (Eisenstat et al., 2001). Recent advances in collaborative software; Internet/intranet technologies and personal desktop video conferencing have facilitated the use of external experts (Hitt & Keats, 1998). Management must encourage collaboration and coordination.

Developing human capital: Human capital has been and will continue to be, the most important asset of every organisation. Management, increasingly, need for knowledge workers and found out that; working in the competitive world is a war. A war for talent; it is a war for three types of resources- financial, human and technology (Venkatraman, 2000). According to InternetWeek's survey, more than 60 percent of IT departments were experiencing a shortage of skilled workers in those fields. According to Li (1997), around half of GNPs of industrialised countries are made up of information contents and it is estimated that around half of the workforce in all these economies are information workers.

References

Applegate, L. M. (1994). Managing in an information age: Transforming the organization for the 1990s. Transforming Organizations with Information Technology North-Holland, Amesterdam, 15-94.

Bjorn-Andersen, N. &. J. A. T. (1994). Creating the Twenty-First century organization: The metamorphosis of Oticon. Transforming Organizations with information Technology IFIP, 97-111.

Black, J. A. &. S. E. (2000). Emergence of virtual or network organizations: fad or feature. Journal of Organizational Change Management, 13(6), 567-576.

Boddy, D. a. A. B. (1986). Managing New Technology. Oxford: Basil Blackwell Ltd.

Boddy, D. a. N. G. (1996). Organizations in the Network Age. London: Routledge Press.

Brenner, E. (2000). Virtual Communities on the business world. Information Today, 17(11), 1,68+.

Brown, S. L. a. K. M. E. (1998). Competing on the strategy as Structured Chaos Boston, Massachusetts: Harvard Business School Press.

Bulloch, J. (2000-2001). Virtual Value. CMA Management, 74(10), 30-33.

Byrne, J. a. (2000). Management by Web. (3696), 84-96. New York: Business Week.

Cairncross, F. (2000). Survey: E-Management–The shape of the new e-company. Vol. 357(8196), 37-38. London: The Economist.

Chesbrough, H. W. a. D. J. T. (1996). When is Virtual Virtuous? Organizing for Innovation. Harvard Business Review, 65-73.

Chutchian, J. a. F. (1999). Virtual corporation . Computer World, 33(37), 64-65.

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Eisenstat, R. N. F. J. G. a. D. M. (2001). Beyond the Business Unit. The McKinsey Quarterly , 1, 54-63.

Hagel III, J. (1996). Spider Versus Spider. Mckinsey Quarterly, number 1, 71-80.

Hagel III, J. &. A. G. A. (1997). Net Gain :Expanding markets through virtual communities. The Mckinsey Quarterly , Number 1, 141-153.

Hitt, & Michael A and Barbara W Keats. (1998). Navigating in the new competitive landscape: Building atrategic flexibility and competitive advantage in the 21st century . The Academy of Management Executive , 12(4), 22-42.

Johnson, J. R. (2000). What's your Web strategy? Industrial Distribution, 89(1), 131.

kelly, K. (1997). New Rules for the New Economy Twelve dependable principles for thriving in a turbulent world. Wired, 140-197.

Klenke, K. (1994). Information Technologies as drivers of emergent prganizational forms: a leadership perspective. Transforming Organizations with Information Technology, North-Holland, Amsterdam, pp.323-337.

Lee, M.Y. (1997). Anticipating the integrated future. Managing Office Technology, 42(12), 24-25.

Li, F. (1997). From Compromise to Harmony: Organisational Re-design Through Information and Communication Technologies. International Journal of Information Management, 17(6), 451-464.

Li, F. a. H. W. (2000). Living in 'two spaces': organisation in the information economy. The New Review of Information Systems Research.

Mahadevan, B. (2000). Business models for Internet-based E-commerce: An anatomy. California Management Review, 42(4), 55-69.

Miles, r. E., & Charles C.Snow. (1986). Organizations: New concept for new forms. California Management Review, 18(3), 62-73.

Mintzberg, H. (1983). Structure In Fives: Designing Effective Organizations. London: Prentice-Hall International editions.

Raynor, M. (2000). In search of new opportunities: Drucker suggest... Consulting to Management, 11(1), 55-56.

Robbins, S. p. (1987). Organization Theory: Structure, design, and applications. London: Prentice-Hall International edition.

Schacklett, M. (2000). A tale of three successful Web strategies. 8-9. Credit Union Magazine.

Simon, A. (2000). Prescription for Internet success. Discount Merchandiser,Bristol, 40(2), 21-22.

Smith, D. (1999). Centralization: What's The Inernet's Role? Internetweek; Manhasset, (748), 27-28.

Teo, T. S. H. P. K. W. E. H. C. (2000). Information Technology Investment and the role of a firm: an exploratory study. International Journal of Information Management, 20, 269-286.

Venkatraman, N. (2000). Five steps to a dot. com strategy: How to find your footing on the Web. Sloan Management Review, Cambridge, 41(3), 15-28.

Venkatraman, N.(1994). IT-enabled business trasformation: From automation to business scope redefinition. Sloan Management Review; 35(2), 73-78.

Venkatraman, N. a. J. C. H. (1998). Real Strategies for Virtual Organizing. Sloan Management Review; Cambridge, 40(1).

Waters, J. (2000). 10 trends affecting the corporate environment. Facilities Design & Management, 19(12), 14-15. Reprint: New York,

Wilson, T. (1999). Transforming The IT Underpinnings: Organizational Change-- IT Leads Charge-- The Internet Is Pushing IT Executives Into The Corporate. (786), 80. Manhasset: Internetweek.

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